

CLAIMS

1. Spoked bicycle wheel consisting of a hub, which is connected by means of spokes under tension to a ring shaped rim, with an unequal number of spokes on the two sides of the wheel, in the case of which the center plane of the anchoring points of the spokes in the rim is laterally displaced from the center plane of the hub flanges or from the center plane of differently constructed anchoring points on the sides of the hub (F), **characterized in that**

the number of spokes, which from the hub on that side of the center plane of the rim (M) lead in the direction towards the rim, on which a higher sum of the tensions of these spokes is present and the number of spokes, which from the hub on the opposite side of the center plane (M) of the rim lead in the direction towards the rim, on which a lower sum of the tensions of the spokes is present is at a mutual ratio of 3 : 1 or 5 : 2 or 2 : 1 or 7 : 4 or 5 : 3 or 3 : 2 or 4 : 3.

2. Spoked bicycle wheel according to claim 1, **characterized in that**

the spokes number ratio of 3 : 1 or 5 : 2 or 2 : 1 or 7 : 4 or 5 : 3 or 3 : 2 or 4 : 3 diverges by zero to plus or minus 50 percent from the ratio of the dimensional values $c : d$, which are measured on the hub used and are possibly corrected when calculating $c : d$ by means of the measures described in claims 11, 12 or 13, whereby:

c is measured between the radial center plane of the axes of the spokes anchored in the hub, which spokes are lead from the hub on that side of the center plane (M) of the rim in the direction towards the rim where a lower total tension of these spokes is present, in the locations, where the spokes leave the hub and have only just reached the direction towards the rim and the radial center plane of the axes of all the spokes anchored in the rim, in those locations, in which the spokes leave the rim and have just reached the direction towards the hub and

d is the analogue value to c on the opposite side of the center plane (M) of the rim where a larger total tension of the spokes anchored in the hub is present,

whereby the ratio of the average tension of the spokes, which from the hub on the one side of the center plane (M) of the rim lead in the direction towards the rim and the average tension of the spokes, which lead from the hub in the direction towards the rim on the other side of the center plane (M) of the rim diverges by zero to plus or minus 50 percent from the ratio 1 : 1.

3. Spoked bicycle wheel according to claim 1 or 2, **characterized in that**

the number of spokes, which from the hub on the one side of the center plane (M) of the rim lead in the direction towards the rim and the number of those spokes, which from the hub on the other side of the center plane (M) of the rim lead to the rim, is in the ratio of c : d, whereby

the average tension of the spokes which lead from the hub on the one side of the center plane (M) of the rim in the direction towards the rim and the average tension of those spokes which lead from the hub on the other side of the center plane (M) of the rim in the direction towards the rim is at a ratio of 1 : 1.

4. Spoked bicycle wheel according to claim 1 or 2 to 3, **characterized in that** the number of spokes, which from the hub on the one side of the center plane (M) of the rim lead in the direction towards the rim and the number of those spokes, which from the hub on the other side of the center plane (M) of the rim lead to the rim, is at a ratio of 3 : 1.
5. Spoked bicycle wheel according to claim 1 or 2 to 3, **characterized in that** the number of spokes, which from the hub on the one side of the center plane (M) of the rim lead in the direction towards the rim and the number of those spokes, which from the hub on the other side of the center plane (M) of the rim lead to the rim, is at a ratio of 5 : 2.
6. Spoked bicycle wheel according to claim 1 or 2 to 3, **characterized in that** the number of spokes, which from the hub on the one side of the center plane (M) of the rim lead in the direction towards the rim and the number of those spokes, which from the hub on the other side of the center plane (M) of the rim lead to the rim, is at a ratio of 2 : 1.
7. Spoked bicycle wheel according to claim 1 or 2 to 3, **characterized in that** the number of spokes, which from the hub on the one side of the center plane (M) of the rim lead in

the direction towards the rim and the number of those spokes, which from the hub on the other side of the center plane (M) of the rim lead to the rim, is at a ratio of 7 : 4.

8. Spoked bicycle wheel according to claim 1 or 2 to 3, **characterized in that** the number of spokes, which from the hub on the one side of the center plane (M) of the rim lead in the direction towards the rim and the number of those spokes, which from the hub on the other side of the center plane (M) of the rim lead to the rim, is at a ratio of 5 : 3.
9. Spoked bicycle wheel according to claim 1 or 2 to 3, **characterized in that** the number of spokes, which from the hub on the one side of the center plane (M) of the rim lead in the direction towards the rim and the number of those spokes, which from the hub on the other side of the center plane (M) of the rim lead to the rim, is at a ratio of 3 : 2.
10. Spoked bicycle wheel according to claim 1 or 2 to 3, **characterized in that** the number of spokes, which from the hub on the one side of the center plane (M) of the rim lead in the direction towards the rim and the number of those spokes, which from the hub on the other side of the center plane (M) of the rim lead to the rim, is at a ratio of 4 : 3.
11. Spoked bicycle wheel according to claim 1 or one of the claims 2 to 10, **characterized in that** it comprises a rim, in which the center plane of the anchoring points of the spokes in the rim is laterally displaced from the center plane (M) of the rim.
12. Spoked bicycle wheel according to claim 1 or one of the claims 2 to 11, which comprises conventional hub flanges with spoke holes running in parallel to the axis of the wheel and conventional spokes bent at their ends and comprising a spoke head, **characterized in that** all spokes anchored in the flange are inserted into in the direction of only one flange side, whereby different combinations of these directions can be formed on a wheel.
13. Eccentrically spoked bicycle rear wheel according to claim 1 or one of the claims 2 to 12, **characterized in that** it comprises a rear wheel hub, in which the distance between the center planes of the hub flanges or between the center planes of otherwise designed anchoring points of the spokes on the sides of the hub (c + d), amounts to 58 or more millimeters.
14. Spoked bicycle wheel according to claim 1 or one of the claims 2 to 13, **characterized in**

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that it comprises a sticker on the hub and/or on the rim with an inscription of a suitable text, which draws attention to the unaccustomed and for the spoking and centering of the wheel important arrangement of the spokes on the sides of the wheel.

15. A bicycle with at least one spoked wheel according to claim 1 or one of the claims 2 to 14.
16. Method for the standardization of the spoke tensions in the case of eccentrically spoked bicycle wheels, in which the average tension of the spokes, which from the hub on that side of the center plane (M) of the rim lead in the direction towards the rim, where a greater overall tension of the anchored spokes is present, is equalized to such an extent as is desired with the average tension of those spokes, which from the hub on the opposite side of the center plane (M) of the rim lead in the direction towards the rim, where a lower overall tension of the anchored spokes is present, **in that** the hub on the individual sides of the center plane (M) of the rim is equipped with a correspondingly unequal number of anchored spokes.
17. Spoked bicycle front wheel consisting of a wheel hub, which by means of spokes is connected with a ring-shaped wheel rim under tension, with identical number and tension of the spokes on both wheel sides, **characterized in that** all spokes, which lead from the wheel hub on one side of the center plane (M) of the rim in the direction towards the rim leave the spoke holes circle in a direction more or less tangential to the spoke holes circle and all spokes which lead from the hub in the direction towards the rim on the other side of the center plane(M) of the rim also leave the spoke holes circle in a direction more or less tangential to the spoke holes circle, however in the opposite circumference direction of the wheel.

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